

1 4. The computer program product of claim 3, wherein the instructions operable
2 to cause a programmable processor to add comprise instructions operable to cause a
3 programmable processor to:
4 identify distances in the second dimension between one or more textual elements and
5 one or more graphical elements;
6 add the textual elements to the one or more new pages; and
7 add the graphical elements to the one or more new pages based on the distances in the
8 second dimension and positions of the textual elements in the one or more new pages.

1 5. The computer program product of claim 4, wherein:
2 the instructions operable to cause a programmable processor to identify include
3 instructions operable to cause a programmable processor to
4 create a map containing the positions of the textual elements in the page, and
5 augment the map with the positions of the textual elements in the one or more
6 new pages to produce a relationship for each textual element between the position of
7 the textual element in the page and the position of the textual element in the one or
8 more new pages; and
9 the instructions operable to cause a programmable processor to add the graphical
10 elements include instructions operable to cause a programmable processor to
11 add the graphical elements to the one or more new pages according to the
12 map.

1 6. The computer program product of claim 5, wherein the instructions operable
2 to cause a programmable processor to add the graphical elements according to the map
3 include instructions operable to cause a programmable processor to:
4 associate one or more particular textual elements with one or more particular
5 graphical elements;
6 determine distances in the second dimension between the particular textual elements
7 and the particular graphical elements; and
8 select positions in the one or more new pages for placement of the particular
9 graphical elements based on the distances and the positions of the particular textual elements
10 in the one or more new pages as listed in the map.

1 7. The computer program product of claim 6, wherein the instructions operable
2 to cause a programmable processor to associate include instructions operable to cause a
3 programmable processor to:
4 associate a particular graphical element with a particular textual element that is
5 nearest to the particular graphical element in the first dimension.

1 8. The computer program product of claim 6, wherein

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select positions in the one or more new pages for placement of the scaled graphical elements corresponding to the particular graphical elements based on the distances and the positions of scaled textual elements corresponding to the particular textual elements in the one or more new pages as listed in the map.

associate a particular graphical element with a particular textual element that is nearest to the particular graphical element in the further dimension.

17. The computer program product of claim 15, wherein the instructions operable to cause a programmable processor to associate include instructions operable to cause a programmable processor to associate a given graphical element with a plurality of given textual elements; and the instructions operable to cause a programmable processor to select include instructions operable to cause a programmable processor to scale the given graphical element in the dimension when a distance in the dimension between the plurality of given textual elements in the page differs from a corresponding distance in the one or more new pages between a plurality of scaled textual elements corresponding to the plurality of given textual elements.

18. The computer program product of claim 11, wherein the textual elements are organized as words.

19. A computer program product, tangibly stored on a computer-readable medium, for reflowing a page, comprising instructions operable to cause a programmable processor to:

receive a page represented in a page description language, the page including a plurality of page objects; and

6 change a size of the page to a changed size in a first dimension, and changing a size
7 of one or more of the page objects, while maintaining spatial relationships between the page
8 objects in a second dimension.

1 20. The computer program product of claim 19, wherein the page objects include
2 textual and graphical elements, and wherein the instructions operable to cause a
3 programmable processor to change include instructions operable to cause a programmable
4 processor to:

5 maintain spatial relationships between the textual and graphical elements in the
6 second dimension.

1 21. The computer program product of claim 20, wherein the instructions operable
2 to cause a programmable processor to change include instructions operable to cause a
3 programmable processor to:

4 create one or more new pages having the same size as the page in a further
5 dimension;

6 scale the textual and graphical elements, producing scaled textual and graphical
7 elements; and

8 add the scaled textual and graphical elements to the one or more new pages.

1 22. The computer program product of claim 21, wherein the instructions operable
2 to cause a programmable processor to add include instructions operable to cause a
3 programmable processor to:

4 identify distances in the second dimension between one or more textual elements and
5 one or more graphical elements;

6 add the scaled textual elements to the one or more new pages; and

7 add the scaled graphical elements to the one or more new pages based on the
8 distances in the second dimension and positions of the textual elements in the one or more
9 new pages.

1 23. The computer program product of claim 22, wherein:

2 the instructions operable to cause a programmable processor to identify include
3 instructions operable to cause a programmable processor to

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33. The method of claim 32, wherein:
the identifying step includes
creating a map containing the positions of the textual elements in the page,
and
augmenting the map with the positions of the textual elements in the one or
more new pages to produce a relationship for each textual element between the
position of the textual element in the page and the position of the textual element in
the one or more new pages; and
the step of adding the graphical elements includes
adding the graphical elements to the one or more new pages according to the map.

34. The method of claim 33, wherein the step of adding the graphical elements
according to the map comprises:
associating one or more particular textual elements with one or more particular
graphical elements;
determining distances in the second dimension between the particular textual
elements and the particular graphical elements; and
selecting positions in the one or more new pages for placement of the particular
graphical elements based on the distances and the positions of the particular textual elements
in the one or more new pages as listed in the map.

35. The method of claim 34, wherein the associating step comprises:
associating a particular graphical element with a particular textual element that is
nearest to the particular graphical element in the first dimension.

36. The method of claim 34, wherein
the associating step includes associating a given graphical element with a plurality of
given textual elements; and
the selecting step includes scaling the given graphical element when a distance in the
first dimension between the plurality of given textual elements in the page differs from a
corresponding distance between the plurality of given textual elements in the one or more
new pages.

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1 37. The method of claim 30, wherein the textual elements are organized as words.

1 38. A method for reflowing a page, comprising:
2 receiving a page represented in a page description language, the page including a
3 plurality of page objects; and
4 changing a size of the page objects without changing the size of the page, while
5 maintaining spatial relationships between the page objects in a dimension of the page.

1 39. The method of claim 38, wherein the page objects include textual and
2 graphical elements, and wherein the changing step comprises:
3 maintaining spatial relationships between the textual and graphical elements in the
4 dimension.

1 40. The method of claim 39, wherein the changing step further comprises:
2 creating one or more new pages having the same size as the page in a further
3 dimension;
4 scaling the textual and graphical elements, producing scaled textual and graphical
5 elements; and
6 adding the scaled textual and graphical elements to the one or more new pages.

1 41. The method of claim 40, wherein the adding step comprises:
2 identifying distances in the dimension between one or more textual elements and one
3 or more graphical elements;
4 adding the scaled textual elements to the one or more new pages; and
5 adding the scaled graphical elements to the one or more new pages based on the
6 distances in the dimension and the positions of the scaled textual elements in the one or more
7 new pages.

1 42. The method of claim 41, wherein:
2 the identifying step includes
3 creating a map containing the positions of the textual elements in the page,
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2 receiving a page represented in a page description language, the page including a
3 plurality of page objects; and
4 changing a size of the page to a changed size in a first dimension, and changing a size
5 of one or more of the page objects, while maintaining spatial relationships between the page
6 objects in a second dimension.

1 48. The method of claim 47, wherein the page objects include textual and
2 graphical elements, and wherein the changing step comprises:
3 maintaining spatial relationships between the textual and graphical elements in the
4 second dimension.

1 49. The method of claim 48, wherein the changing step further comprises:
2 creating one or more new pages having the same size as the page in a further
3 dimension;
4 scaling the textual and graphical elements, producing scaled textual and graphical
5 elements; and
6 adding the scaled textual and graphical elements to the one or more new pages.

1 50. The method of claim 49, wherein the adding step comprises:
2 identifying distances in the second dimension between one or more textual elements
3 and one or more graphical elements;
4 adding the scaled textual elements to the one or more new pages; and
5 adding the scaled graphical elements to the one or more new pages based on the
6 distances in the second dimension and positions of the textual elements in the one or more
7 new pages.

1 51. The method of claim 50, wherein:
2 the identifying step includes
3 creating a map containing the positions of the textual elements in the page,
4 and
5 augmenting the map with the positions of the textual elements in the one or
6 more new pages to produce a relationship for each textual element between the

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7 position of the textual element in the page and the position of the corresponding
8 scaled textual element in the one or more new pages; and
9 the step of adding the graphical elements includes
10 adding the graphical elements to the one or more new pages according to the map.

1 52. The method of claim 51, wherein the step of adding the graphical elements
2 according to the map comprises:

3 associating one or more particular textual elements with one or more particular
4 graphical elements;

5 determining distances in the second dimension between the particular textual
6 elements and the particular graphical elements; and

7 selecting positions in the one or more new pages for placement of the scaled graphical
8 elements corresponding to the particular graphical elements based on the distances and the
9 positions of scaled textual elements corresponding to the particular textual elements in the
10 one or more new pages as listed in the map.

1 53. The method of claim 52, wherein the associating step comprises:
2 associating a particular graphical element with a particular textual element that is
3 nearest to the particular graphical element in the first dimension.

1 54. The method of claim 52, wherein
2 the associating step includes associating a given graphical element with a plurality of
3 given textual elements; and

4 the selecting step includes scaling the given graphical element when a distance in the
5 dimension between the plurality of given textual elements in the page differs from a
6 corresponding distance in the one or more new pages between a plurality of scaled textual
7 elements corresponding to the plurality of given textual elements.

1 55. The method of claim 48, wherein the textual elements are organized as words.

1 56. The method of claim 47, wherein the amount of size change of a page object
2 depends on the type of the page object.

repeatedly augment each PDL range with a PDL element that is adjacent to the PDL range and is not part of another PDL range when the bounding box of the PDL element overlaps the bounding box of the PDL object associated with the PDL range; such that the PDL elements in each PDL range define an illustration.

3 combine two illustrations when their PDL ranges are adjacent and their bounding
4 boxes overlap.

such that the PDL elements in each PDL range define an illustration.

1 65. A method for forming illustrations in a page, comprising:

